Southern Pine BEETLE NEWS

No. 23, August 1980

Computer Will Help Determine Profit in SPB-Killed Timber

SAWMOD (SAWmill decision MODel) is a computer program designed to help smaller sawmill operators establish potential return from beetle-killed timber in different stages of deterioration.

At present, managers of smaller operations have little information on which to base processing decisions and make profit estimates. So the risk of loss grows when unusual variables — such as processing beetle-killed timber — enters the picture. SAWMOD will give the operator a better idea of what he will gain or lose if he decides to process dead timber.

The inputs required by SAWMOD include lumber grade yields, production rates, current residue prices, manufacturing costs, log costs FOB mill, log diameter distributions, and total log volumes. None of these inputs is difficult to establish.

The particular version of SAWMOD described in the article excerpted here was developed specifically for six groups or quality classifications of southern pine sawtimber:

Class 1. Butt logs from green healthy trees.

Class 2. Upper logs from green healthy trees.

Class 3. Butt logs from beetle-killed trees 12 months dead.

Class 4. Upper logs from beetle-killed trees 12 months dead.

Class 5. Butt logs from beetle-killed trees 20 months dead (1 winter season and 2 summer seasons).

Class 6. Upper logs from beetle-killed trees 20 months dead (1 winter season and 2 summer seasons).

A dollar value is calculated for each log in each of the six classes. This value is determined from the market prices of the lumber plus the residue prices. Lumber values are determined from the current lumber prices of the actual sizes and grades of lumber at the test sawings. Residue values are based on the estimated residue weights and current prices for sawdust, shavings, bark, and chips.

Annual operating cost for the sawmill itself is divided by the hours of operation per year to obtain an average hourly cost. The annual operating cost would include any reasonable costs of goods and services used in the revenue-earning process.

Manufacturing costs per log are based on the time it takes the slowest machine in the mill to process the log. Sawing times are no different for beetle-killed trees than for non-beetle-killed trees. Thus, only one set of data is required to represent sawing times for each group. For simplicity's sake, the initial base data for SAWMOD is comprised totally of 16.3-ft. logs.

SAWMOD takes the above inputs and equates costs with potential revenue classes. Break-even log costs are assumed to be that level of log costs at which the sawmill operation neither makes a profit or operates at a loss.

Break-even log costs provide sawmill operators with an excellent guideline for purchasing logs. This is an especially important guideline for southern pine sawmills because log costs are a major portion of the cost of operation. By subtracting a margin for profit and risk from the break-even cost of the logs, an operator can readily bid on logs with the information provided by SAWMOD.

Moreover, SAWMOD enables the operator to examine the results of changing production or mar-

OFFICIAL NEWSLETTER OF THE U.S.D.A. EXPANDED SOUTHERN PINE BEETLE RESEARCH & APPLICATIONS PROGRAM (ESPBRAP)
2500 SHREVEPORT HIGHWAY • PINEVILLE, LOUISIANA 71360

ket variables on profits even before the actual changes take place. One market factor subject to potential change is the structure of the lumber grading rules. A solution to this problem could be to simulate the effect of lower lumber grades by reducing the grades of all structural lumber from beetle-killed material by one grade. Grade 4 or Economy would remain the lowest grade since it is generally not suitable for structural applications.

SINCLAIR, S.A.
1979. SAWMOD: A tool for optimizing potential profit from beetle-killed southern pine sawtimber. Univ. of Minn. Agri. Exp. Sta., Sci. Jour. Ser. Paper No. 10,917. Univ. of Minn. Agri. Exp. Sta., St. Paul.

Steven A. Sinclair
Dept. of Forest Products,
University of Minnesota
St. Paul, MN 55108

So, What Have We Learned About the Southern Pine Beetle?

Although the Southern Pine Beetle Program will not be completed until Sept. 30, 1980, it has already made some discoveries that foresters can use now.

Stand rating systems help the forester determine the relative susceptibility of stands to beetle attack. These systems use common field variables, such as basal area, growth rate, and tree height. Infestations occur most often in dense, old, and slow growing stands that are located on soils subjected to moisture extremes. Infestations are frequently started in stands disturbed by lightning or recent logging.

SPB-killed timber can be used as raw material by kraft mills without affecting timber yield and with only a slight effect on paper properties. In the Gulf Coast States, timber from trees killed by beetles can be used after being left on the stump for 6 months after attack. In the mid-Atlantic Coast States, timber can still be used after being left on the stump for up to 24 months after beetle attack.

Dursban 4E and lindane are two insecticides approved for killing beetles already in trees or for preventing beetles from attacking trees.

Several models have been developed for the forester. A damage-prediction model estimates how many trees over a large area are likely to die from SPB attack. A stand-growth model predicts the effects of such plantation management practices as thinning and fertilization on tree growth and yield. An economic model estimates what will happen with and without a control program.

Other models have been developed primarily for use by scientists. These models have been developed to describe and forecast beetle population trends and tree mortality trends. A spot growth model estimates tree mortality in infestations by using such variables as beetle numbers, weather, and the size and number of infested trees. Another model estimates tree mortality over large forest areas by using basal area, brood stage, tree species, and radial growth. A third model predicts infestation growth for 4 months by using the ratio of the number of brood beetles emerging from a tree to the number of beetles that attack a tree.

Aerial survey and navigation systems combine ground and aerial survey techniques so that the volume of dead pines and the size and number of infestations can be estimated. To improve the accuracy of aerial survey flights, pilots use Loran-C radio navigation equipment.

A combination of forest pest management strategies is needed for long-term SPB control. Preventive and suppressive techniques must be economical and ecological.

COSTER, J. E., and G. D. HERTEL.
1980. New southern pine beetle information. Consultant 25(2):35-37.

Jack E. Coster
Southern Pine Beetle Program
2500 Shreveport Highway
Pineville, LA 71360

Note to Readers

We welcome material from our readers that deals with the use of SPB-related technology. This might include training sessions you put on, implementation of technology, training aids you develop, etc. We would like to make note of your efforts in this Newsletter.

Thanks
Program Manager

Expert Panel Evaluates Beetle Program

An interdisciplinary team from the University of Pittsburgh met with a 10-member expert panel at Daytona Beach, Fla., in mid-July to evaluate the effectiveness of the accelerated Southern Pine Beetle Research and Development Program.

The experts were selected on the basis of their knowledge of the problems, issues, and solutions related to the R&D program. They were asked to judge the effectiveness of the program in attaining its goals, providing specific outputs or end products, and assessing the benefits to be derived from the work by the southern forestry community. This was compared with what would have been accomplished if there had been no accelerated program.

The Pittsburgh team members included: Dr. D. C. Allen, State Univ., N.Y. College of Forestry and Environmental Science; T. R. Bell, Dr. D. I. Cleland, and Dr. D. F. Kocaoglu.

The expert panel members included: Dr. S. J. Barras, Southern Forest Experiment Station; E. H. Barron, Texas Forest Service, R. P. Belanger, Southeastern Forest Experiment Station; D. R. L. Hedden, Clemson University College of Forestry and Recreation Resources; Dr. B. F. Malac, Union Camp Corp.; M. C. Remion, South Carolina State Commission of Forestry; Dr. T. E. Nebeker, Department of Entomology, Mississippi State University; D. L. V. Pienaar, University of Georgia School of Forestry Resources; D. W. Smith, Southern Forest Institute; and K. M. Swain, Southeastern Area, State and Private Forestry.

Office and Program Management leaders and observers included: Dr. J. E. Coster, University of West Virginia; Dr. G. D. Hertel, SPB Program; D. E. Ketcham, U.S. Forest Service Programs and Legislation; Dr. R. C. Thatcher, SPB Program Manager; and Dr. M. E. McKnight, CANUSA Spruce Budworm Program.

East Texans Participate In Six SPB Workshops

East Texans apparently take their Southern Pine Beetle (SPB) threat quite seriously. No less than six SPB workshops have been held in East Texas so far this summer and all have been well attended.

Texas Forest Service entomologists Ron Billings and Joe Pase led the workshops to discuss guidelines for aerial detection, ground checking, and suppression and prevention of beetle-caused losses.

Billings and Pase emphasized realistic goals for setting control priorities, as described in Agriculture Handbook No. 558, *A Field Guide for Ground Checking Southern Pine Beetle Spots,* and Agriculture Handbook No. 560, *An Aerial Observer's Guide to Recognizing and Reporting SPB Spots.*

More than 200 persons attended the sessions, including representatives from St. Regis, Owens-Illinois, International Paper, Kirby Forest Industries, Temple-Eastex, Champion International, T. Foster Estate, Gibbs Brothers, and Farm Craft.

Coster to West Virginia University

Friends and associates of Jack Coster, Applications Coordinator for ESPBRAP, will be pleased to know that Jack has moved on to a very responsible position in academia. Effective July 1, 1980, he is the new Director of the Division of Forestry at West Virginia University. Jack has done an outstanding job as Applications Coordinator and as a member of the southern forestry community. We will miss him, but wish him well. Jack's new mailing address and phone number are:

Dr. Jack E. Coster, Director
Division of Forestry
West Virginia University
Morgantown, WV 26506
(304) 293-2941

Mason Joins ESPBRAP Team

Garland Mason has joined the Southern Pine Beetle Program management team in Pineville, effective July 21, it was announced by Dr. Robert C. Thatcher, Program Manager.

Mason comes from the School of Forestry at Stephen F. Austin State University in Nacogdoches, Texas, where he served as assistant professor of photogrammetry since 1975. Prior to that, he spent more than 6 years with the Texas Forest Service, with time out to complete work on his PhD. at Texas A&M.

Mason will serve as Research Coordinator for ESPBRAP (which terminates Sept. 30, 1980) and for the new RD&A Program on Integrated Pest Management Systems for Bark Beetles of Southern Pines (which starts Oct. 1, 1980).

U. S. DEPARTMENT OF AGRICULTURE
SOUTHERN PINE BEETLE PROGRAM
ALEXANDRIA FORESTRY CENTER
2500 SHREVEPORT HIGHWAY
PINEVILLE, LA. 71360

ADDRESS CORRECTION REQUESTED

Cooperative Magazine Warns of Southern Pine Beetle Crisis

"The Southern Pine Beetle killed enough timber in Southern forests in 1979 to build 34,500 homes."

So said the lead paragraph in a recent article published by Gold Kist News, a magazine of the Atlanta, Ga.-based Gold Kist Cooperative.

The article continued: "Beetle activity is now reported in 10 of the 13 Southern states but hardest hit are Alabama, Georgia, Mississippi, and North and South Carolina."

The article said that Georgia wood industry representatives have emphasized their willingness to buy the timber killed by the beetle as long as the wood is sound. They urged landowners to salvage as soon as possible after infestation is found to assure usable wood.

"Salvage has made a definite impact on decreasing the amount of southern pine beetle damage," the article said. "It continues to be the recommended method of controlling the southern pine beetle if the measure is properly carried out."

The article quoted the Georgia Forestry Commission as saying the key to a successful salvage operation to halt the spread of the beetle is to remove all infested trees. The article goes on to detail the methods for removing the trees.

The article concludes by saying, "With southern pine beetles spreading, farmers are asking for more research to find an effective way to control the beetle. About all that can be done now is to cut the trees."

Other Publications of Interest

Mizell, R.F. III.
1980. *Thanasimus dubius* (F.): Some behavioral factors affecting its predatory role. PhD. Thesis. Miss. State Univ., Mississippi State. 160 p.

Gagne, J.A., R. N. Coulson, J. L. Foltz, T. L. Wagner, and L. J. Edson.
1980. Attack and survival of *Dendroctonus frontalis* in relation to weather during three years in East Texas. Environ. Entomol. 9:222-229.
Department of Entomology, Texas A.&M. University, College Station, TX 77843.

Goehring, C. B.
1980. In-grade flexural properties of structural lumber harvested from a bark beetle-infested southern pine forest. M.S. Thesis. Va. Polytechnic Inst. & State Univ., Blacksburg, Va.
Department of Forestry, Virginia Polytechnic Institute and State University, Blacksburg 24061.

Ku, T. T., J. M. Sweeney, and V. B. Shelburne.
1980. Site and stand conditions associated with southern pine beetle outbreaks in Arkansas—a hazard-rating system. South. J. Appl. For. 4(2):103-106. Univ. Ark., Monticello, Ark.
Department of Forestry, University of Arkansas, Monticello 71665.

All publications are partially or wholly supported by the Southern Pine Beetle Program.